

CLAIMS:

1. A method of manufacturing a catalysed ceramic wall-flow filter comprising a plurality of channels, which method comprising reducing the pressure in a pore structure of the channel walls relative to the surrounding atmospheric pressure, contacting a surface of the evacuated channel walls with a liquid containing at least one catalyst component or a precursor thereof, whereby the liquid permeates the evacuated channel walls, and drying and calcining the filter containing the catalyst component or its precursor.
2. A method according to claim 1, wherein the steps of contacting the evacuated channel walls with a liquid containing at least one catalyst component or its precursor and drying the filter is repeated at least once prior to the calcining step.
3. A method according to claim 1 or 2, wherein the pressure reduction in the pore structure of the channel walls is maintained during the liquid contacting step.
4. A method according to claim 1, 2 or 3, wherein the liquid containing the at least one catalyst component precursor comprises an aqueous solution of at least one metal salt.
5. A method according to claim 1, 2, 3 or 4, wherein the liquid containing the at least one catalyst component comprises a slurry of at least one particulate metal oxide material in a carrier medium, optionally water.
6. A method according to claim 5, wherein the D50 of the or each particulate metal oxide material is in the range 1-20 μm .
7. A method according to claim 1, 2, 3 or 4, wherein the liquid containing the at least one catalyst component comprises a sol of at least one metal oxide material in a carrier medium, optionally water.

8. A method according to claim 7, wherein the D50 of the sol particles is in the range 10-500 nm.
- 5 9. A method according to any preceding claim, wherein the at least one catalyst component or its precursor comprises at least one component selected from the group consisting of aluminium, cerium, zirconium, titanium or silicon or a mixed oxide or composite oxide of any two or more thereof.
- 10 10. A method according to claim 9, wherein the loading of the at least one catalyst component in the catalysed ceramic wall-flow filter is from 20-120 g/litre (566-3398 g/ft³).
- 15 11. A method according to any preceding claim, wherein the at least one catalyst component or its precursor comprises at least one platinum group metal, optionally selected from the group consisting of platinum, palladium, rhodium, osmium and iridium.
- 20 12. A method according to any preceding claim, wherein the at least one catalyst component or its precursor comprises at least one base metal, optionally selected from the group consisting of copper, iron, vanadium, molybdenum, tungsten and cerium.
- 25 13. A method according to any preceding claim, wherein the catalyst component or its precursor comprises a basic metal selected from the group consisting of alkali metals, alkaline earth metals and rare earth metals.
- 30 14. A method according to claim 11, 12 or 13, wherein the individual or total platinum group metal loading, the individual or total base metal loading or the individual or total basic metal loading is from 25-200g/ft³, optionally from 50-150g/ft³.
15. A method according to any preceding claim, wherein the material from which the ceramic filter is made is selected from the group consisting of silicon, silicon

carbide, aluminium nitride, silicon nitride, aluminium titanate, alumina, cordierite, mullite pollucite and a thermet such as $\text{Al}_2\text{O}_3/\text{Fe}$, $\text{Al}_2\text{O}_3/\text{Ni}$ or $\text{B}_4\text{C}/\text{Fe}$.

- 5 16. A method according to any preceding claim wherein the virgin filter material has a porosity of 40-60%.
17. A method according to any preceding claim wherein the filter has a cell density of 50-600 cells per square inch (cpsi ($15.5 \text{ cells cm}^{-2}$ - $186.0 \text{ cells cm}^{-2}$)).
- 10 18. Apparatus (100) for use in the method according to any preceding claim, comprising means (120) for sealingly isolating a plurality of channels of a ceramic wall-flow filter (140) from the surrounding atmosphere, means (160, 200, 220) for reducing the pressure in the isolated channels to below the surrounding atmospheric pressure thereby to establish a vacuum in the pore structure of the filter walls, at least one reservoir (260) for holding a liquid containing at least one catalyst component or a precursor thereof and means (310, 300, 220) for dosing the isolated and evacuated channels with a pre-determined quantity of the liquid.
- 15 19. Apparatus according to claim 18, comprising a pressurisable container (120) having a sealable closure (130) for receiving a ceramic wall-flow filter (140).
- 20 20. An apparatus according to claim 18 or 19, comprising means (160, 200, 220) for maintaining the reduced pressure in the isolated channels to below the surrounding atmospheric pressure during dosing of the liquid.
- 25 21. An apparatus according to claim 18, 19 or 20 which is at least semi-automated, comprising means (220, 230) for controlling both the means for reducing pressure in the isolated channels and the means for dosing the liquid.